

WRITTEN EXPLANATION BASED ON ARTICLE 19, (1) OF THE TREATY

In Claim 1 and Claim 3, it has been clarified that the physical property of the binder, differs in the thickness direction thereof in the state where this binder is bonded with at least the electronic parts.

Although a multilayer tape of which fluidity differs is stated in the reference (JP5-13119A), the fluidity is a physical property before bonding, and any physical property after bonding is not stated.

In Claim 7, it has been clarified that an elastic modulus of the second resin is lower than that of the first resin.

In the reference, the first and second resins having different elastic moduli are not stated.

In Claim 15, it has been clarified that the binder differs in the thickness direction in the coefficient of thermal expansion or the elastic modulus.

In the reference, the binder which differs in the thickness direction in the coefficient of thermal expansion or the elastic modulus is not stated.

In Claim 21, it has been clarified that the binder forms a multilayer structure, and that the physical property of the each layer is different from one another.

It is stated in the reference (JP10-13002A) that a semiconductor element is coated with a resin paste, while a substrate is provided with a sheet of anisotropic conductive adhesive, and the two are bonded, but the binder previously

forming the multilayer structure is not stated.

In Claims 23 and 25, it has been clarified that the first and second resins differ in the coefficient of thermal expansion or the elastic modulus.

5 In the reference, the first and second resins which differ in the coefficient of thermal expansion or the elastic modulus are not stated.

CLAIMS

1. (Amended) A binder used for bonding electronic components, a physical property of the binder being different
5 in a thickness direction thereof in a state where the binder is bonded with at least the electronic components.

2. The binder as defined in Claim 1,
wherein the binder is an anisotropic conductive film.
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3. (Amended) The binder as defined in Claim 2,
wherein the binder forms a two-layer structure comprising
a first layer formed of a first resin as a base material, and
a second layer formed of a second resin as a base material, the
15 first resin and the second resin having different physical
properties in a state where the binder is bonded with at least
the electronic components..

4. The binder as defined in Claim 3,
20 wherein a coefficient of thermal expansion of the first
resin is smaller than a coefficient of thermal expansion of the
second resin.

5. The binder as defined in Claim 4,
25 wherein the silica-based filler is mixed only in the first
resin.

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6. The binder as defined in Claim 4,
wherein the silica-based filler is mixed in the first resin
and the second resin, and a mixing ratio of the silica-based
filler in the first resin is greater than a mixing ratio of the
5 silica-based filler in the second resin.

7. (Amended) The binder as defined in Claim 3,
wherein the second resin is made lower in elastic modulus
than the first resin.

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8. The binder as defined in Claim 7,
wherein the second resin is a metamorphic epoxy resin.

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9. The binder as defined in Claim 7,
wherein the first resin is an epoxy resin, and
wherein the second resin is a biphenyl resin.

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10. The binder as defined in Claim 3,
wherein conductive particles are dispersed only in the
second resin.

11. The binder as defined in Claim 3,
wherein the conductive particles are dispersed only in the
second resin; and

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wherein the second layer is thinner than the first layer,
and the second resin has higher viscosity than the first resin
when melted.

12. The binder as defined in Claim 11,
wherein the silica-based filler is mixed only in the second
resin.

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13. The binder as defined in Claim 11,
wherein the silica-based filler is mixed in the first resin
and the second resin, and a mixing ratio of the silica-based
filler in the ~~first~~ ^{Second} resin is greater than a mixing ratio of the
silica-based filler in the ~~second~~ ^{First} resin.

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14. The binder as defined in Claim 11,
wherein a molecular weight of the second resin is greater
than a molecular weight of the first resin.

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15. (Amended) A semiconductor device comprising:
a semiconductor chip;
a substrate on which a interconnecting pattern is formed;
and
20 a binder electrically connecting the semiconductor chip
and the interconnecting pattern,
wherein the binder differs in a coefficient of thermal
expansion or an elastic modulus in a thickness direction
thereof.

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16. The semiconductor device as defined in Claim 15,

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wherein the binder is an anisotropic conductive film.

17. The semiconductor device as defined in Claim 16,
wherein the binder forms a two-layer structure comprising
5 a first layer formed of a first resin as a base material and
disposed on a side of the semiconductor chip, and a second layer
formed of a second resin as a base material and disposed on a
side of the substrate, the first resin and the second resin
having different physical properties.

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18. The semiconductor device as defined in Claim 17,
.wherein the binder is the binder as defined in any one of
Claim 4
claims 4 to 14.

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19. A circuit board on which the semiconductor device as
Claim 16
defined in any one of Claims 15 to 17 is mounted.

20. Electronic equipment comprising the semiconductor
device as defined in any one of Claims 15 to 17.

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21. (Amended) A method of manufacturing a semiconductor
device, comprising a step of providing a binder having a
multilayer structure, between a semiconductor chip and a
interconnecting pattern of a substrate on which is formed the
25 interconnecting pattern, pressing the semiconductor chip and
the substrate, and electrically connecting the semiconductor
chip and the interconnecting pattern,

wherein a physical property of each layer of the binder having the multilayer structure is different from one another.

22. The method of manufacturing a semiconductor device as
5 defined in Claim 21,

wherein the binder is an anisotropic conductive film.

23. (Amended) The method of manufacturing a semiconductor device as defined in Claim 22,

10 wherein the binder forms a two-layer structure comprising a first layer formed of a first resin as a base material, and a second layer formed of a second resin having a different coefficient of thermal expansion or an elastic modulus from the first resin as a base material.

15 24. The method of manufacturing a semiconductor device as defined in Claim 23,

wherein the second layer is formed after the first layer.

20 25. (Amended) A method of manufacturing a semiconductor device, comprising a step of providing a binder between a semiconductor chip and a interconnecting pattern of a substrate on which is formed the interconnecting pattern, pressing the semiconductor chip and the substrate, and electrically connecting the semiconductor chip and the interconnecting pattern,

25 wherein the binder comprises a first layer formed of a

first resin as a base material, and a second layer formed of a second resin as a base material, the second resin differing from the first resin in at least one of a coefficient of thermal expansion and an elastic modulus of, and

5 wherein the first layer is disposed on a side of the semiconductor chip, and the second layer is disposed on a side of the substrate.

26. (Amended) The method of manufacturing a semiconductor device as defined in Claim 25,

wherein at least one of the first layer and the second layer is an anisotropic conductive film.

27. (Amended) The method of manufacturing a semiconductor device as defined in ~~any one of Claims 21 to 24,~~ ^{Claim 21}

wherein the binder is the binder as defined in any one of Claims 4 to 14.

28. (Amended) The method of manufacturing a semiconductor device as defined in ~~Claims 25 or 26,~~ ^{Claim 26}

wherein the binder is the binder as defined in any one of Claims 4 to 14.